agri-fax Alberta AGRICULTURE

88-05368/

Agdex FS100/81-7

September, 1987

1986 Average Analysis of Alberta Feeds

The data in this report are a summary of the results of analyses on feeds received for analysis at the Agricultural Soils and Animal Nutrition Laboratory in 1986. This information has been prepared to provide producers, agribusiness, veterinarians, researchers and government staff with current information about the average nutrient content of feeds grown in Alberta. It is important to remember, however, that the nutrient content of an individual sample can be markedly different from the average for that feed type. More information about the ranges and standard deviation in nutrient content that can be expected can be obtained from the publication *Average Analysis of Alberta Feeds*, 1976-86 (Agdex 100/81-6).

All of the analyses presented in this report, except for bushel weights in grains are expressed on a moisture-free basis. This year, macro and trace values used are average values for the period 1976-86 and Table 2 includes information on feeds not analysed in 1986 crop year. The following abbreviations have been used in Table 2: copper (Cu), manganese (Mn), zinc (Zn), aluminum (Al), cobalt (Co), iron (Fe), molybdenum (Mo), magnesium (Mg), potassium (K), sodium (Na), sulphur (S) and selenium (Se).

Table 1: Average Analysis of Alberta Feeds 1986

	Number of Samples	Bushel Wt. (lb)	Moisture (%)	Protein (%)	Calcium (%)	Phosphorus (%)
Grains						
Barley	126	49.8	12.4	12.1	0.07	0.34
Oats	83	39.3	11.0	11.1	0.10	0.30
Wheat	19	58.1	13.5	15.5	0.06	0.38
Field Peas	3	60.4	11.0	20.7	0.13	0.36
Triticale	5	50.6	12.8	13.9	0.09	0.39
Canola	17	48.5	9.1	21.5	0.47	0.66
High Moisture Barley	7	—	29.5	11.9	0.07	0.33

	Number of Samples	Moisture (%)	Protein (%)	Fibre (ADF) (%)	Calcium (%)	Phosphorus (%)
Hays						
Alfalfa	145	15.2	17.5	32.9	1.72	0.22
Clover	13	15.1	15.0	35.2	1.26	0.20
Sweet Clover	4	18.8	15.0	37.5	1.22	0.22
Alfalfa-Grass	409	15.3	12.8	35.8	1.17	0.18
Clover-Grass	89	16.0	9.8	37.4	0.72	0.15
Legume-Grass	509	15.4	12.2	36.2	1.08	0.18
Grasses (unsp.)	5	14.4	9.3	35.2	0.37	0.18
Native Grass	3	18.3	6.6	34.3	0.09	0.10
Slough Grass	8	17.8	9.4	36.2	0.25	0.12
Brome	22	14.1	8.9	35.2	0.57	0.14
Timothy	19	14.5	8.1	35.8	0.44	0.14
Fescue	1	6.5	7.5	32.5	0.52	0.14
Crested Wheat-Grass	5	10.1	9.2	35.9	0.40	0.14
Russion Wild Rye	1	6.3	6.2	42.5	0.18	0.17

Copies of this and related publications may be obtained from the Print Media Branch, Alberta Agriculture, 7000 - 113 Street, Edmonton T6H 5T6 or Alberta Agriculture's District Offices.

Table 1 — Continued

	Number of Samples	Moisture (%)	Protein (%)	Fibre (ADF) (%)	Calcium (%)	Phosphorus (%)
Greenfeeds						
Barley	32	14.9	11.9	36.4	0.46	0.25
Oats	123	17.6	8.6	36.6	0.35	0.21
Wheat	5	12.4	9.0	35.0	0.27	0.22
Rye	15	17.5	8.9	40.0	0.21	0.18
Triticale	1	25.3	7.0	31.6	0.15	0.18
Silages						
Wheat	3	69.8	12.4	39.7	0.32	0.32
Barley	38	63.9	10.7	34.1	0.45	0.28
Oats	15	65.5	9.6	38.7	0.56	0.25
Rye	5	65.0	10.9	34.5	0.35	0.25
Corn	7	67.3	9.2	34.7	0.30	0.22
Alfalfa	22	52.9	16.2	34.0	1.87	0.21
Clover	11	67.2	13.8	40.5	1.39	0.22
Sweet-Clover	3	68.8	17.7	37.9	1.17	0.27
Silage (unsp.)	5	60.5	11.7	39.6	0.85	0.22
Alfalfa-Grass	48	57.2	14.0	34.7	1.50	0.21
Clover-Grass	25	60.3	13.8	35.6	0.83	0.18
Legume-Grass	73	58.2	13.9	35.0	1.27	0.20
Fababeans	3	64.5	16.3	40.6	0.80	0.30
Peas	11	66.3	11.0	35.1	0.53	0.26
Canola	2	75.4	13.1	43.0	0.76	0.33
Straws						
Wheat	5	16.1	4.7	48.8	0.28	0.08
Oats	19	15.6	4.1	48.8	0.29	0.09
Barley	16	14.3	4.9	46.4	0.41	0.08
Mixed Cereal	41	15.1	4.6	47.8	0.31	0.09
Flax	1	13.5	3.2	68.0	0.58	0.04

	Number of Samples	Moisture (%)	Protein (%)	Crude Fibre (%)	Calcium (%)	Phosphorus (%)
Screenings						
Barley	1	12.6	15.2	—	0.31	0.74
Mixed Cereal	2	11.2	17.3	—	0.43	0.71
Canola	1	10.4	19.1	11.8	0.40	0.64
Protein Supplements						
Soybean Meal	2	11.2	49.5	—	0.29	0.76
Canola Meal	1	8.0	31.7	11.1	0.51	1.16

Table 2: Average Macro and Trace Mineral Contents of Alberta Feeds (1976-1986)

	Parts Per Million (ppm)												Per Cent (%)								Parts Per Billion	
	Cu		Mn		Zn		Al		Co		Fe		Mo		Mg		K		Na		S		Se*	
GRAINS																								
Barley	6.5	(248)	18.8	(219)	41.2	(245)	26	(35)	0.40	(11)	90	(111)	1.38	(67)	0.14	(193)	0.54	(193)	0.017	(87)	0.13	(68)	103	(592)
Oats	4.6	(143)	43.9	(137)	32.6	(141)	8	(32)	0.24	(7)	65	(54)	1.02	(41)	0.13	(116)	0.47	(115)	0.017	(50)	0.13	(45)	114	(273)
Spring Wheat	8.2	(4)	39.8	(2)	45.8	(4)	—		—		—		—		0.14	(2)	0.39	(2)	—		0.20	(6)	97	(14)
Utility Wheat	4.5	(2)	38.8	(2)	41.4	(2)	3	(1)	—		39	(1)	—		0.16	(2)	0.39	(2)	0.001	(1)	0.16	(1)	121	(5)
Fall Wheat	5.3	(3)	29.6	(3)	44.4	(3)	—		—		46	(3)	—		0.18	(3)	0.47	(3)	—		0.23	(3)	—	
Rye	3.8	(3)	20.6	(3)	34.6	(3)	5	(1)	—		32	(1)	0.47	(1)	0.13	(2)	0.53	(2)	0.001	(1)	0.07	(1)	133	(3)
Mixed Cereal	5.8	(413)	28.9	(375)	38.1	(40.7)	23	(71)	0.34	(18)	80	(173)	1.23	(111)	0.14	(328)	0.52	(335)	0.017	(142)	0.14	(130)	109	(920)
Fababeans	10.6	(4)	15.8	(4)	58.7	(4)	—		—		75	(3)	—		0.14	(3)	0.94	(4)	0.026	(2)	—		98	(6)
Canola	4.4	(4)	40.7	(4)	41.5	(4)	—		—		238	(1)	1.51	(1)	0.36	(4)	0.86	(4)	—		0.62	(3)	97	(1)
Triticale	5.8	(17)	37.6	(16)	47.8	(17)	—		—		96	(1)	—		0.17	(16)	0.49	(16)	0.002	(5)	—		228	(8)
Field Peas	5.6	(3)	21.1	(3)	97.9	(3)	13	(1)	0.37	(1)	97	(3)	10.0	(1)	0.22	(3)	0.98	(3)	0.002	(3)	0.30	(1)	145	(7)
Corn	2.5	(4)	6.8	(4)	22.8	(4)	4	(2)	—		23	(2)	0.73	(2)	0.14	(3)	0.41	(3)	0.001	(2)	—		13	(3)
Buckwheat	11.1	(4)	27.2	(4)	25.0	(4)	—		—		62	(4)	—		0.24	(4)	0.56	(4)	0.003	(4)	—		369	(4)
HAYS																								
Barley	4.4	(80)	30.1	(81)	32.6	(81)	454	(21)	0.30	(1)	305	(61)	1.19	(16)	0.22	(78)	1.48	(148)	0.123	(28)	0.20	(122)	208	(104)
Oats	5.1	(124)	51.4	(119)	23.8	(122)	73	(23)	1.24	(9)	195	(62)	1.29	(39)	0.39	(106)	1.81	(102)	0.181	(49)	0.18	(22)	192	(258)
Wheat	6.2	(19)	49.5	(19)	24.4	(11)	151	(4)	—		353	(15)	1.11	(8)	0.16	(17)	1.33	(18)	0.007	(11)	0.28	(11)	482	(24)
Rye	6.5	(3)	26.2	(3)	19.8	(3)	27	(1)	0.16	(1)	86	(1)	0.30	(1)	0.17	(4)	1.31	(3)	0.001	(1)	0.15	(1)	252	(11)
Canola	2.4	(16)	41.0	(16)	35.3	(16)	108	(3)	—		841	(1)	0.92		0.50	(17)	1.88	(52)	0.060	(3)	0.68	(52)	—	
Triticale	4.6	(10)	16.7	(1)	26.4	(1)	—		—		56	(1)	—		0.09	(1)	0.88	(1)	0.002	(1)	—		—	
Legume (unsp.)	9.4	(5)	9.6	(5)	30.3	(5)	83	(5)	—		214	(5)	1.44	(5)	0.28	(6)	1.23	(5)	0.011	(5)	0.12	(5)	275	4)
Alfalfa	7.0	(345)	35.7	(330)	23.8	(340)	522	(51)	0.7	(24)	337	(150)	2.10	(89)	0.31	(313)	1.74	(284)	0.040	(115)	0.23	(99)	277	(554)
Clover	7.3	(16)	46.0	(15)	28.6	(16)	60	(2)	0.3	(2)	47	(52)	1.39	(4)	0.37	(10)	1.58	(9)	0.007	(5)	0.14	(2)	156	(42)
Sweetclover	6.7	(1)	19.2	(1)	25.7	(0)			—		—		1.95	(1)	0.36	(1)	1.57	(1)	—		—		635	3)
Sainfoin	6.1	(4)	41.6	(4)	17.1	(4)	71	(2)	—		147	(4)	3.33	(2)	0.30	(4)	1.88	(4)	0.006	(2)	0.13	(2)	324	(5)
Cicer Milkvetch	5.1	(12)	46.9	(12)	19.0	(12)	—		—		697	(2)	—		—		—		—		0.30	(2)	25	(12)
Peas	4.7	(1)	31.8	(1)	29.3	(1)	68	(1)	—		123	(1)	4.05	(1)	0.46	(1)	1.21	(1)	0.175	(1)	0.18	(1)	—	
Legume-grass	6.6	(928)	43.6	(881)	24.0	(901)	119	(141)	0.61	(48)	139	(385)	2.12	(275)	0.24	(783)	1.57	(725)	0.022	(267)	0.16	(231)	209	(1740)
Alfalfa-grass	6.7	(729)	40.4	(687)	23.4	(713)	131	(105)	0.51	(38)	141	(139)	2.34	(200)	0.25	(630)	1.59	(590)	0.024	(218)	0.17	(168)	233	(1345)
Clover-grass	6.5	(142)	59.1	(139)	27.4	(140)	106	(25)	0.98	(7)	150	(53)	1.50	(54)	0.22	(106)	1.48	(100)	0.016	(41)	0.14	(50)	127	(299)
Grass(unsp.)	5.2	(107)	75.0	(105)	24.4	(105)	625	(22)	0.24	(1)	359	(47)	1.53	(29)	0.17	(58)	1.20	(53)	0.022	(32)	0.18	(23)	208	(138)
Brome	6.6	(70)	67.3	(64)	20.6	(67)	62	(15)	0.65	(9)	193	(43)	2.48	(24)	0.16	(42)	1.47	(420)	0.008	(23)	0.15	(35)	139	(106)
Timothy	6.5	(64)	55.8	(61)	23.0	(64)	96	(20)	1.02	(30)	129	(30)	1.82	(32)	0.16	(59)	1.41	(57)	0.043	(11)	0.17	(28)	142	(105)
Crested Wheatgrass	2.9	(33)	43.6	(32)	23.3	(330)	106	(2)	0.16	(1)	296	(31)	1.27	(6)	0.12	(13)	1.18	(12)	0.012	(7)	0.12	(22)	60	(36)
Creeping Red Fescue	4.3	(30)	27.9	(2)	20.2	(3)	—		—		—		—		0.17	(20)	1.28	(1)	—		—		83	(13)
Russian Wildrye	3.3	(1)	48.8	(1)	13.6	(1)	—		—		595	(1)	—		—		—		—		—		269	(8)
Orchard Grass	2.3	(2)	53.6	(2)	26.7	(2)	—		—		—		0.78	(1)	0.23	(2)	1.87	(2)	0.008	(2)	0.11	(1)	490	(6)

Table 2 — Continued

	Parts Per Million (ppm)																						Parts Per Billion
	Cu		Mn		Zn		Al		Co		Fe		Mo		Per Cent (%) Mg		K		Na		S		Se*
HAYS (cont'd)																							
Reed Canary Grass	4.6	(40)	134.8	(4)	36.4	(4)	779	(1)	–		506	(2)	8.30	(1)	0.32	(3)	1.38	(3)	0.810	(1)	0.75	(1)	103 (10)
Meadow Foxtail	8.2	(5)	165.3	(4)	32.5	(5)	—		—		107	(2)	—		0.18	(2)	1.80	(2)	0.004	(1)	—		46 (6)
Native Grass	6.0	(63)	65.9	(63)	21.1	(63)	908	(8)	—		297	(30)	0.89	(13)	0.14	(43)	1.07	(37)	0.053	(28)	0.17	(10)	147 (83)
Slough Grass	6.6	(16)	721	(15)	34.7	(16)	571	(4)	0.81	(1)	298	(10)	1.67	(9)	0.22	(14)	1.20	(14)	0.189	(9)	0.21	(8)	121 (37)
Ryegrass	6.0	(3)	32.0	(3)	28.3	(3)	61	(1)	0.73	(1)	129	(3)	1.58	(1)	0.19	(1)	1.63	(3)	0.010	(3)	0.17	(1)	—
SILAGES																							
Barley	4.8	(91)	37.1	(99)	32.5	(90)	147	(11)	0.52	(8)	228	(35)	1.35	(32)	0.22	(85)	1.50	(82)	0.229	(23)	0.20	(21)	127 (187)
Oats	4.4	(30)	58.7	(26)	29.5	(29)	74	(5)	0.37	(4)	292	(10)	0.91	(6)	0.23	(32)	1.72	(26)	0.133	(8)	0.16	(7)	119 (61)
What	6.0	(1)	58.9	(1)	40.7	(1)	—		—		118	(1)	1.15	(1)	0.22	(1)	1.26	(1)	0.120	(1)	—		113 (3)
Mixed Cereal	4.1	(16)	47.3	(15)	25.3	(16)	—		—		—		1.28	(2)	0.23	(17)	1.59	(14)	0.398	(1)	0.19	(4)	92 (25)
Rye	2.9	(4)	45.0	(4)	26.5	(4)	—		—		182	(4)	—		0.23	(4)	1.47	(4)	0.006	(2)	0.17	(1)	90 (5)
Corn	5.4	(21)	51.4	(18)	52.9	(20)	68	(6)	0.36	(5)	624	(10)	0.76	(7)	0.25	(18)	1.43	(17)	0.011	(8)	0.08	(6)	100 (25)
Triticale	3.6	(5)	36.0	(5)	29.8	(5)	—		—		211	(1)	—		0.14	(5)	1.64	(5)	0.020	(1)	—		69 (5)
Sunflower	4.4	(1)	—	—		—			—		—		—		—	—	—	—	—	—	—	—	—
Pea + Other	5.5	(21)	45.6	(20)	37.3	(21)	30	(2)	—		100	(5)	1.93	(3)	0.24	(21)	1.63	(19)	0.100	(5)	—		123 (73)
Fababean + Other	4.3	(1)	93.1	(1)	27.0	(1)	—		—		—		—		0.26	(1)	—	—	—		—		118 (25)
Canola + Other	5.0	(1)	39.0	(1)	28.0	(1)	67	(1)	—		140	(2)	2.35	(1)	0.40	(1)	1.45	(1)	0.062	(1)	—		156 (8)
Alfalfa	7.0	(81)	34.7	(78)	26.5	(78)	200	(5)	1.23	(3)	235	(33)	1.83	(14)	0.32	(73)	1.81	(66)	0.035	(31)	0.27	(6)	258 (119)
Clover	6.9	(21)	42.3	(20)	27.0	(21)	585	(5)	0.31	(1)	281	(7)	1.20	(7)	0.36	(18)	1.63	(18)	0.016	(7)	0.11	(3)	147 (47)
Legume-grass	6.8	(137)	47.0	(132)	27.4	(136)	171	(13)	1.50	(2)	323	(42)	1.62	(30)	0.25	(113)	1.68	(112)	0.048	(31)	0.20	(28)	116 (251)
Alfalfa-grass	6.5	(97)	44.7	(94)	25.8	(97)	139	(9)	0.56	(1)	327	(36)	1.77	(21)	0.25	(75)	1.74	(74)	0.026	(26)	0.18	(14)	169 (177)
Clover-grass	6.6	(14)	61.0	(14)	32.6	(14)	65	(1)	—		208	(4)	1.12	(1)	0.25	(10)	1.48	(10)	0.017	(2)	0.11	(3)	211 (38)
Grass(unsp.)	7.0	(5)	173.0	(5)	26.5	(5)	428	(1)	—		418	(3)	1.17	(2)	0.25	(7)	1.31	(7)	0.143	(2)	0.18	(1)	162 (11)
Brome	3.5	(1)	63.3	(1)	19.0	(1)	—		—		96	(1)	—		0.17	(1)	1.11	(1)	0.002	(1)	—		75 (2)
Bluegrass	5.2	(8)	81.2	(8)	29.0	(8)	—		—		—		—		0.20	(8)	2.13	(8)	—		—		82 (8)
STRAWS																							
Wheat	3.9	(9)	36.2	(9)	10.0	(9)	51	(4)	0.16	(1)	80	(5)	0.80	(4)	0.11	(9)	1.12	(9)	0.006	(4)	0.08	(4)	338 (18)
Oats	3.2	(26)	50.1	(27)	18.9	(26)	53	(9)	2.16	(1)	127	(14)	1.09	(10)	0.15	(25)	1.41	(24)	0.195	(13)	0.13	(14)	91 (47)
Barley	3.1	(47)	23.2	(43)	14.1	(47)	68	(14)	—		125	(23)	0.82	(17)	0.12	(40)	1.31	(37)	0.131	(22)	0.12	(14)	165 (58)
Mixed Cereal	3.3	(85)	34.1	(82)	15.2	(85)	59	(28)	1.63	(3)	135	(45)	0.98	(33)	0.13	(78)	1.33	(74)	0.138	(42)	0.12	(34)	136 (9)
Fababeans	3.7	(1)	23.3	(1)	14.2	(1)	61	(1)	0.38	(1)	88	(1)	0.44	(1)	0.18	(1)	1.38	(1)	0.119	(1)	—		—
SCREENINGS																							
Canola	3.9	(1)	74.6	(1)	75.4	(1)	570	(1)	1.03	(1)	846	(1)	0.88	(1)	0.52	(1)	1.19	(1)	0.576	(1)	—		—
PROTEIN SUPPLEMENTS																							
Soybean Meal	19.5	(10)	39.0	(10)	58.4	(10)	28	(4)	—		149	(8)	0.35	(9)	2.19	(9)	0.011	(7)	0.47	(5)	609	(16)	

Table 2 — Continued

	Parts Per Million (ppm)																		Parts Per Billion	
	Cu		Mn		Zn		Al		Co	Fe		Mo		Per Cent (%) Mg		K		Na		S		Se*	
PROTEIN SUPPLEMENTS (cont'd)																							
Canola Meal	6.4	(91)	57.6	(93)	74.4	(93)	—		—	223	(88)	0.66	(3)	0.69	(93)	1.31	(29)	0.013	(26)	1.12	(33)	860	(27)
Meat Meal	11.0	(6)	32.2	(7)	176.7	(7)	127	(3)	—	751	(5)	0.89	(7)	0.66	(7)	0.693	(7)	0.49	(3)	559	(5)		
Fish Meal	9.3	(6)	22.7	(6)	98.9	(6)	188	(3)	—	467	(5)	0.45	(1)	0.19	(5)	0.87	(5)	0.696	(5)	0.83	(3)	1752	(5)

— All values are on moisture-free basis.
— Values in brackets refer to the number of samples analysed

Prepared by: Abdullatif I.H. Suleiman, P.Ag., Animal Nutrition Section, Beef Cattle and Sheep Branch.

1987 10 3M